

**CRYOTHERAPY AS A METHOD OF TREATMENT FOR CERVICAL ECTOPY****Dr. Uma Jain***

Ex. Designated professor, Department of Obstetrics & Gynaecology, GMC associated with DH Shivpuri. *Corresponding Author

Dr. Deepa Gupta

M.S., DNB, MNAMS, FICMCH, Ex Assistant Professor, Department of Obstetrics & Gynaecology, MGM Medical College & MY Hospital, Indore (MP)

Dr Archana Kansal

M D Medicine, GR Medical college Gwalior M.P

ABSTRACT

Introduction: Cervical erosion is a common physiological process seen in almost all women of reproductive age group. Cervical erosion/ ectopy is histologically defined as a condition in which the squamous covering of the ectocervix is replaced by single-layer columnar epithelium which is continuous with the lining of the endocervix. **Material And Method:** This retrospective study was carried out at gynaecology clinic in district Shivpuri M.P. From December 2017 to April 2022. 69 patients were included in the study. A detailed history including name, age, residence, socio-economic status, parity, and any inflammatory condition in past was taken. Per-speculum & per-vaginal examination was done. After counselling and written consent, all patients with cervical erosion (cytologically negative for intraepithelial lesions) were treated in an outpatient Colposcopy clinic by cryotherapy. After treatment, all patients were asked to come for follow-up after 4th, 8th and 12th weeks. **Results:** In our study most common age group was 25-40 years (50.72%), most of them were of low socioeconomic status (52.17%) and were from rural areas (79.71%) most of them were para 2 (42.02%). The most common presenting complaint was excessive vaginal discharge (68.11%), followed by intermenstrual bleeding (15.94%) and vaginal itching (4.34%). The most common problem experienced after cryotherapy by patients was Hydrorrhoea (Watery discharge) 81.15% which lasts for 2-4 weeks. **In our study, symptomatic cure was found in 85.50% patient.** On clinical examination, healing of the cervix [clinical cure (ectopy completely disappeared in maximum patients after 8-12 weeks)]. **was found in 89.85% of the patient after 12 weeks of cryotherapy.** **Conclusion:** we concluded that cryotherapy is a safe and effective and acceptable method to treat symptomatic ectopy of the uterine cervix. It is cost effective, as fast acting, easy to acquire therapy and can be practiced by health personnel, and can be used in lower middle income countries.

KEYWORDS : Cryotherapy, vaginal discharge, intermenstrual bleeding.**INTRODUCTION**

Cervical ectopy is a common physiological process seen in almost all women of reproductive age group. It is computed that 80% of women are suffering from cervical erosion. Cervical ectopy is histologically defined as a condition in which the squamous covering of the ectocervix is replaced by single-layer columnar epithelium which is continuous with the lining of the endocervix.^{1,2,3}

Cervical ectopy (CE) is distinguished by an erythematous and inflamed-like region at the external os of cervix, which is formed due to eversion of the endocervical columnar lining outwards.

Cervical ectopy (CE) may be silent and asymptomatic. If symptomatic, it can cause prolonged physical and psychological distress to women due to chronic or recurrent vaginal discharge, discomfort, vaginal itching or pruritis, dyspareunia, pelvic pain and post-coital bleeding, which causes the patient to visit doctor repeatedly.^{4,5}

Studies have proved that there is an association between ectopy and various infections such as chlamydia trachomatis, HPV, and HIV.^{6,7} Long-term exposure of everted columnar epithelium to the vaginal environment leads to squamous metaplasia, which can be a suitable site for inoculation of HPV during intercourse. There is also an association between ectopy and CIN as precancerous lesions often develop at the squamocolumnar junction and are vulnerable to the oncogenic effects of carcinogens.^{8,9}

In recent years, the ablation of ectopic zone has been stated to be very useful in relieving symptoms of chronic cervicitis and prevention or treatment of CIN particularly in low-income countries, as they lack the requisite infrastructures for triage, diagnosis, and management.^{5,10,11}

Various methods have been proposed for damaging the

transformation zone. Cryotherapy is an old and common procedure, Although cryotherapy for the management of CIN has been advocated by many researchers,^{10, 12, 13} its administration for the relief of recurrent or chronic symptoms of benign CE is under debate.^{14,15,16}

Cryotherapy:

(Cryos in Greek means cold). is the application of cold to destroy abnormal or diseased tissue. It is a minimally invasive, cheap, easy, and safe treatment suitable for both hospital and office-based practice.

In Cryotherapy, hypothermia is achieved by passing compressed refrigerant gas (CO₂/N₂O) through a small orifice at the tip of the cryoprobe (Joule Thomson effect).¹⁷

There are many advantages of cryotherapy, It is cost-effective, simple, quick, easy procedure of short duration that does not damage neighbouring healthy tissue, no proven adverse effects are there, no anaesthesia and hospitalization required, and the cure rate is high upto 85%.

Some disadvantages are there like No tissue specimen available for histopathological evaluation and we cannot treat larger & extensive lesions in the endocervical canal which should be followed by colposcopy.¹⁸

Cryotherapy can be done when entire squamocolumnar junction is visualized, entire lesion is visible, it is confined to the ectocervix and it involves <75% area of the cervix and does not extend >2 mm beyond the tip of cryotherapy probe with no suspicion of the invasive lesion.

Cryosurgery of the cervix can not be performed in presence of pelvic or lower genital tract infection, pregnancy, abnormal cervix cytology, persistent low-grade CIN after the previous cryotherapy, and in patients of unsatisfactory colposcopy.

Two methods can be used to cool the cryoprobe:

1. Cryogenic Liquids-

such as liquid helium, nitrogen, and argon. The cryogenic liquid-based procedure is associated with several problems like damage to surrounding tissue and problem of storage, delivery, and handling of liquid material, so not preferred

2. Compressed Gas -

it is recommended for the treatment of CE, and CIN. The gas passes through the cryoprobe and causes ice formation on the probe tip and the tissue surface in contact. A temperature of less than -20 °C to -30 °C should be reached for tissue destruction. The most widely used compressed gas for procedure is carbon dioxide (CO2) and nitrous oxide (N2O).

Cryotherapy is the controlled destruction of tissue by freezing. The equipment consists of a handheld unit with a shaft to which detachable probe tips can be attached. It is double freeze technique in which tissue is frozen for a period of 3 minutes then thawed for 5 minutes and refrozen for 3 minutes. To achieve hypothermia, liquid nitrous oxide is forced through a small hole at a pressure range of 750-900 pounds per square inch (psi),¹⁹ which produces a very low temperature at the surface of the probe due to Joule Thomson effect. The temperature at the probe tip can range from -65°C to -85°C. Cell death occurs secondary to the crystallization of intracellular water at -20°C to -30°C. Liquid nitrogen is by far the most popular in current use. Its popularity is due to low temperature achievable (-197°C), which makes it suitable for both benign and malignant lesions. Its effects are predictable and well-documented. Nitrous oxide is favoured as storage has no problem; cylinders are easily portable. Cryotherapy is cheap, easy, and safe treatment suitable for both hospital and office-based practice.

The cervix heals by re-epithelialization, which occurs in most patients by 6 weeks and in all patients by 3 months.

After effects of cryotherapy may be seen^{1,2,3} as Sensation of cold and a little cramps and sometimes a sense of warmth spread to the upper body and face, vasomotor reactions such as dizziness, flushing, and headache. Profuse clear watery or blood-tinged vaginal discharge for a minimum of 2 weeks, maybe up to 4-6 weeks, and rarely cervical stenosis may occur. Post-cryotherapy adviceto the patients for follow up visits- first after 1 month, then after 3 months, no use of vaginal douch or tampons for 8 weeks, abstinence for a minimum of 4 weeks and antibiotics for 7 days (ofloxacin with tinidazole)

Focused ultrasound therapy (72.52% cure rate), laser, and vaporized destruction are the new treatment modalities for cervical ectopy²⁰ that have been reported. platelet-rich plasma application for the treatment of cervical ectopy has also been reported with a cure rate of 93.7%.²¹

MATERIAL AND METHOD-

This retrospective study was carried out at gynaecology clinic in district Shivpuri M.P. From December 2017 to April 2022. 69 patients were included in the study. A detailed history including name, age, residence, socio-economic status, parity, previous cervix cytology study, any H/O allergy, detailed obstetrics and menstrual history, previous history of use of oral contraceptive pills, IUCD insertion, any treatment for white discharge was taken.

Perspeculum & pervaginal examination was done. After counselling and written consent, all patients were treated in outpatient Colposcopy clinic. Before the procedure, all patients were screened for cervix cytology to exclude any existing cervix pre-cancerous lesions. All patients having ectopy (columnar epithelium extending to the ectocervix a distance of at least 0.5 cm. from the external cervical opening) were included in the study.

Inclusion criteria-

1. Patient age 25-40 years with cervical ectopy
2. No proven or suspected pre-malignant lesion of the cervix

Exclusion criteria

1. Pregnant patient
2. patients with abnormal cytology
3. Large lesion

Procedure:-

Patient was put in a dorsal position. The entire cervix was exposed by Cusco's vaginal speculum. During cryotherapy, the cervix was swabbed with 3-5% acetic acid. Suitable cryoprobe which can cover the entire lesion was selected. The part was frozen for 3 minutes, thawed for 5 minutes, and then refreeze for 3 minutes by using Nitrous oxide as a refrigerant. Freezing was continued till ice-ball formation was 2-3 mm beyond the area of ectopy. (Probe was removed when it separated on its own from the cervix) 5days antibiotic was given to all patients. After treatment, all patients were asked to come for follow-up after 4,8 weeks, and 12 weeks. Any discomfort after treatment was enquired about. During each follow-up visit, a per-speculum examination was done and all signs and symptoms were assessed. All data were documented.

All the data were analysed using IBM SPSS Ver. 20 software. Cross-tabulation and frequency distribution were used to prepare tables. Data are expressed as numbers, percentages, and means.

RESULT

Table 1: Distribution As Per Age Group (N = 69)

Age	Frequency	Percent
25-30	35	50.72
31-40	34	49.27
Total	69	100
Socio-economic	Frequency	Percent
High	4	5.79
Middle	29	42.02
Low	36	52.17
Total	69	100
Residence	Frequency	Percent
Urban	14	20.28
Rural	55	79.71
Total	69	100
Parity	Frequency	Percent
Para 1	8	11.59
Para 2	29	42.02
Para 3	23	33.33
Para 4 and more than para 4	9	13.04
Total	69	100

In our study most common age group was 25-30 years (50.72%), most of them were of low socioeconomic status (52.17%) and were from rural areas (79.71%) most of them were para 2 (42.02%).

Table 2:- Symptomatic Cure Of Patients Before And After Cryotherapy

Symptoms	No. of cases with symptoms		No of the patients cured	
	Before Cryotherapy		After Cryotherapy	
	No.	Percent	No.	Percent
Excessive vaginal discharge	47	68.11	42 (60.86)	Over all Symptomatic cure 85.50 %
Inter-menstrual bleeding	11	15.94	9 (13.04)	
Vaginal itching and pruritus	3	4.34	2 (2.89)	

Post-coital bleeding	1	1.44	1 (1.44)
Dyspareunia	1	1.44	0 -
Low backache	1	1.44	1 (1.44)
Pain in abdomen	4	5.79	3 (4.34)
Burning micturition	1	1.44	1 (1.44)
Total	69	100	85.50

Most of the patients presented with excessive vaginal discharge (68.11%), the second highest was intermenstrual bleeding (15.94%) and vaginal itching (4.34%).

After cryotherapy, vaginal discharge was cured in 60.86% patients. Overall improvement in symptoms was 85.50%.

Table 3:- Postoperative Complaints

Complaint	Number	Percent
Hydrorrhea (Watery discharge)	56	81.15
Spotting	5	7.24
Postcoital bleeding	3	4.34
Dyspareunia	2	2.89
Lower abdominal pain	1	1.44
Fever	1	1.44
Pruritis	1	1.44
Total	69	100

Healing process was not pleasant for many patients. the most common problem experienced after cryotherapy by 81.15% patients was Hydrorrhea (Watery discharge) which lasts for 2-4 weeks.

7.24% of patients complained of spotting, 4.35% complained of postcoital bleeding, and 2.89% complained of dyspareunia after cryotherapy.

Table 4:- Cytological Findings Before And After Cryotherapy And Cure

	Before cryotherapy		After cryotherapy	
	No	%	No	%
Pap smear				
Normal	52	75.36	61	88.40
Inflammatory	11	15.94	5	7.246
Unsatisfactory	6	8.69	3	4.347
Total	69	100	69	100

75.36% of cases showed normal smears and 15.94% of patients showed inflammatory smears before cryotherapy while 88.40% of smears showed normal and 7.24% showed inflammatory smears after cryotherapy in our study.

Table 5:- Interval Healing (Clinical Cure)

Interval in weeks	Number	Percent	Over all clinical cure 89.85% Complete healing
8	47	68.11	
10	8	11.59	
12	7	10.14	
Total	62	89.85	

On clinical examination, healing of the cervix was found in 89.85% of the patient after 12 weeks of cryotherapy.

DISCUSSION

Cervical ectopy is defined as the replacement of squamous epithelium of cervix by columnar epithelium beyond external os. Cervical ectopy is mostly symptomatic in women and may cause excessive vaginal discharge, post coital bleeding, intermenstrual bleeding, pruritis vulvae and others.

cryotherapy is an effective procedure to treat cervical ectopy and it is proven to be a reliable method with limited side effects and morbidity. In our study we found cryotherapy is effective in all aspects i.e. clinical, cytological, and symptomatic cure in treatment of cervical ectopy.

In our study most common age group was 25-30 years (50.72%), most of them were of low socioeconomic status (52.17%) and were from rural areas (79.71%) most of them were para 2 (42.02%). It was similar to the study of B. Shilpa Shivana et al²² in which the most common age group was 20-30 years and 72% of patients were belong to low socioeconomic condition.

Most of the patients were presented with complaint of excessive vaginal discharge (68.11%), the second highest was intermenstrual bleeding (15.94%) and vaginal itching (4.34%). Similar findings were reported in study of Kishankumar D. Patel²³, Mohanty et al²⁴, Cekmez et al²⁵, Jahic et al²⁶, where excessive vaginal discharge was the most common presenting complaint in 93%, 90%, 91.9%, and 87% respectively our study was different from one another study in which 55% of patients complaint of white discharge.²⁷

The most common problem experienced after cryotherapy by patients was Hydrorrhea (Watery discharge) in 81.15% which lasts for 2-4 weeks. 7.24% of patients complained of spotting, 4.34% complained of postcoital bleeding, and 2.89% complained of dyspareunia in our study, similar finding were reported by Dr. B. Shilpa Shivanna²² and Shirish Seth in which excessive watery discharge after cryo was found in 50% and 66.80% patients respectively.

Overall symptomatic cure was found in 85.50% patient. In study of Kishankumar D Patel²³, Peck et al²³, Cekmez et al²⁵, Jahic et al²⁶, the efficacy of cryotherapy was found in 91.9%, 91%, 89.05% and 93.05%. Kwikkel et al²⁸ reported higher cure rates in small lesions (96.8%) as compared to large lesions.

On Clinical examination healing of the cervix was found in 89.85% of the patient after 12 weeks of cryotherapy .similar findings were reported in various studies^{22,23,24}

CONCLUSION:-

Cryotherapy is easy to use, inexpensive and associated with low morbidity. It is a good treatment modality for ectocervix-confined, small-volume disease. Cryotherapy is an appropriate technique for use in low-resource settings as it does not require electricity, instruments are not expensive, and the procedure is technically simple.

In our study healing of the cervix was found in 89.85% of the patient after 12 weeks of cryotherapy and the success rate of cryotherapy was highest in women with excessive vaginal discharge. Cryotherapy can be used in patients with cervical ectopy in which cytology and VIA are negative. We concluded that cryotherapy is a safe and effective and acceptable method to treat symptomatic ectopy of the uterine cervix. It is a cost-effective therapy that is fast acting, easy to acquire and practice by health personnel, and can be used in low or medium income countries. Cryotherapy remains one of the best methods to treat symptomatic ectopy of the uterine cervix.

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